ADDITIONAL

Service Manual

PIONEER

ORDER NO.
ARP-481-0

FM/AM DIGITAL SYNTHESIZED TUNER

TX-950

HEZ, YP, S, S/G, SS

Type	Voltage	Remarks
HEZ	AC220V, 240V (switchable)	West Germany model
YP	AC240V only	Australia model
S	AC110V, 120V, 220V, 240V (switchable)	General export model
S/G	AC110V, 120V, 220V, 240V (switchable)	U.S. Military model
SS	AC110V, 120V, 220V, 240V (switchable)	South Africa model

The basic performance of the model TX-950/HEZ, YP, S, S/G and SS is the same as the model TX-950/KU. Please refer to TX-950/KU service manual (ARP-472) with the exception of this service manual. This additional service manual is applicable to the TX-950/HEZ, YP, S, S/G and SS model.

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1. FOR HEZ AND YP TYPES

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 × 10¹*	*561 .....*	*RD¼PS 5 6 1 J*
47kΩ	*47 × 10³*	*473 .....*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*	*.....*	*RN2H 0 R 5 K*
1Ω	*010*	*.....*	*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621 ....*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★ .*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

The HEZ and YP types are the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

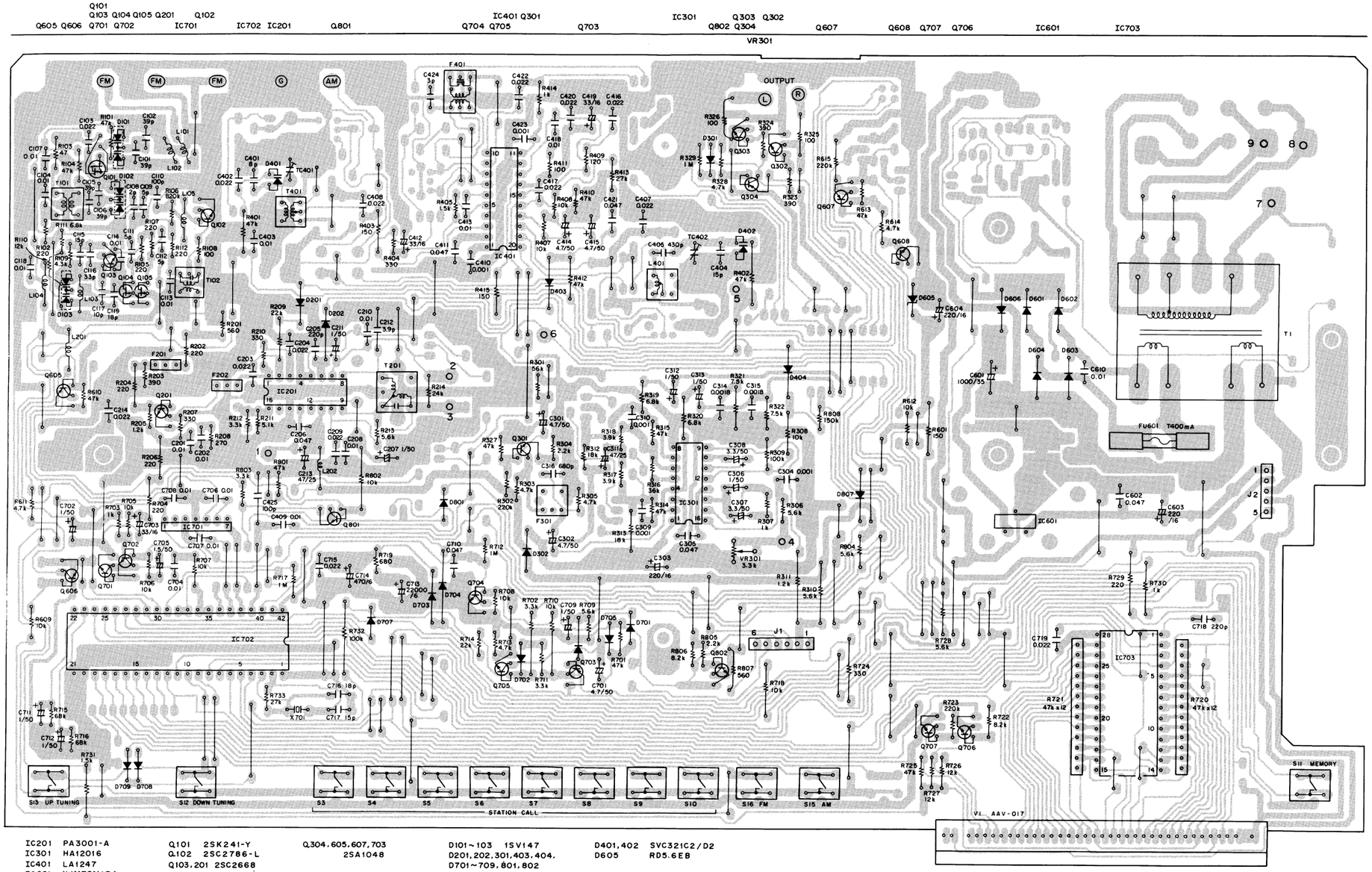
Mark	Symbol & Description	Part No. KU type	Part No. HEZ type	Part No. YP type	Remarks
	Complex assembly	GWM-346	GWM-358	GWM-358	
⚠ ★★	FU601 Fuse (0.8A/125V)	AEK-118	...	...	
⚠ ★★	FU601 FUSE (T400mA/250V)	...	AEK-407	AEK-407	
	Operating Instructions (English)	ARB-602	...	ARB-602	
	Operating Instructions (English, French, German, Italian)	...	ARE-101	...	
	Packing case	AHE-332	AHE-354	AHE-354	
⚠	AC power cord	ADG-073	ADG-071	ADG-064	

Complex Assembly (GWM-358)

The complex assembly GWM-358 (for HEZ and YP types) is the same as the GWM-346 (for KU type) with the exception of the following sections.

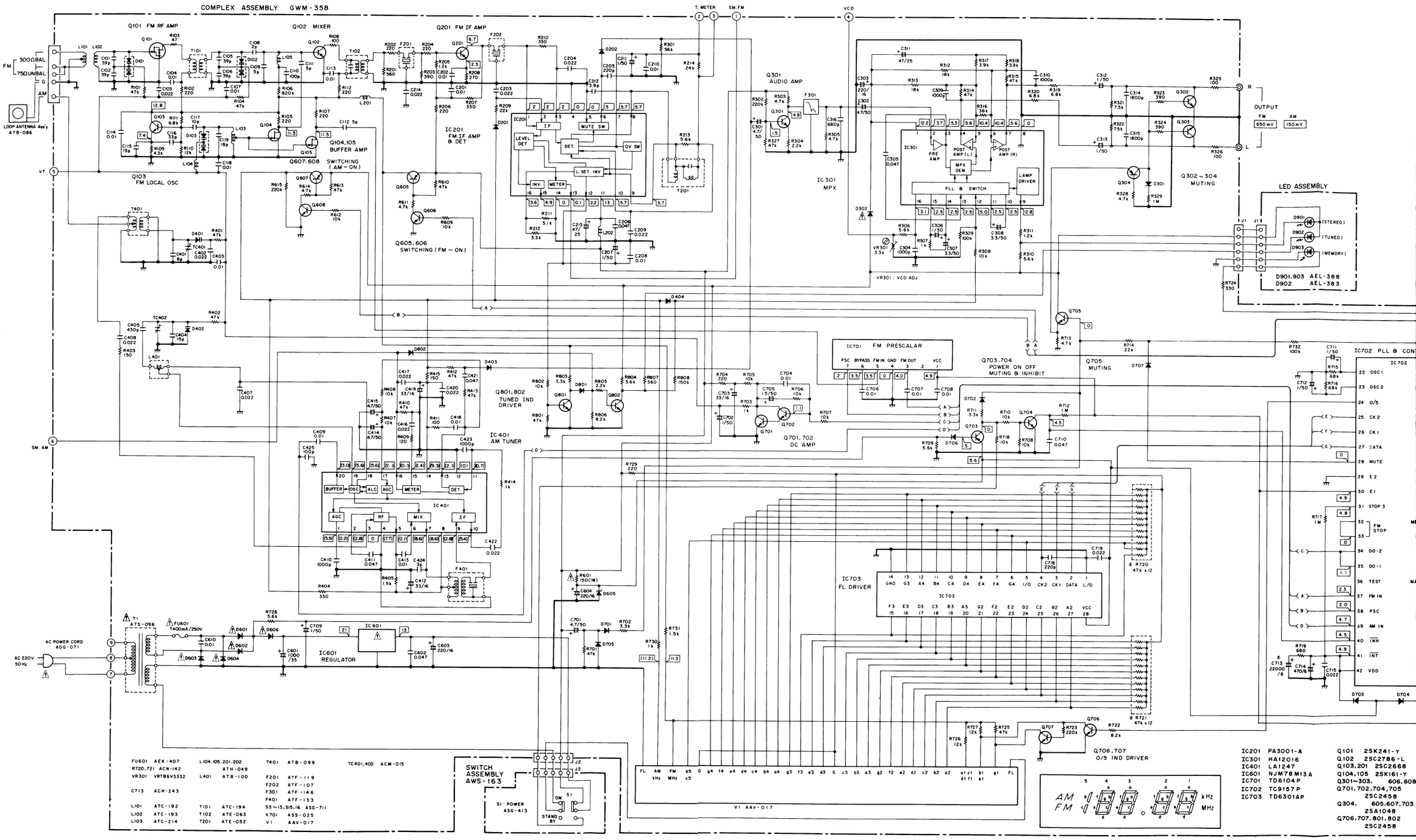
Mark	Symbol & Description	Part No. GWM-346	Part No. GWM-358	Remarks
★★	Q305, Q306	2SK246	...	
⚠ ★	T1 Power transformer	ATS-095	ATS-096	
★★	S17 Slide switch	ASH-034	...	
	C317, C318	CKDYB561K50	...	
⚠	R616 Carbon composition	ACN-140	...	
	R330, R331	RD1/8PM □□□J	...	
	Terminal (ANTENNA)	AKA-017	AKA-018	

COMPLEX ASSEMBLY (GWM-358)

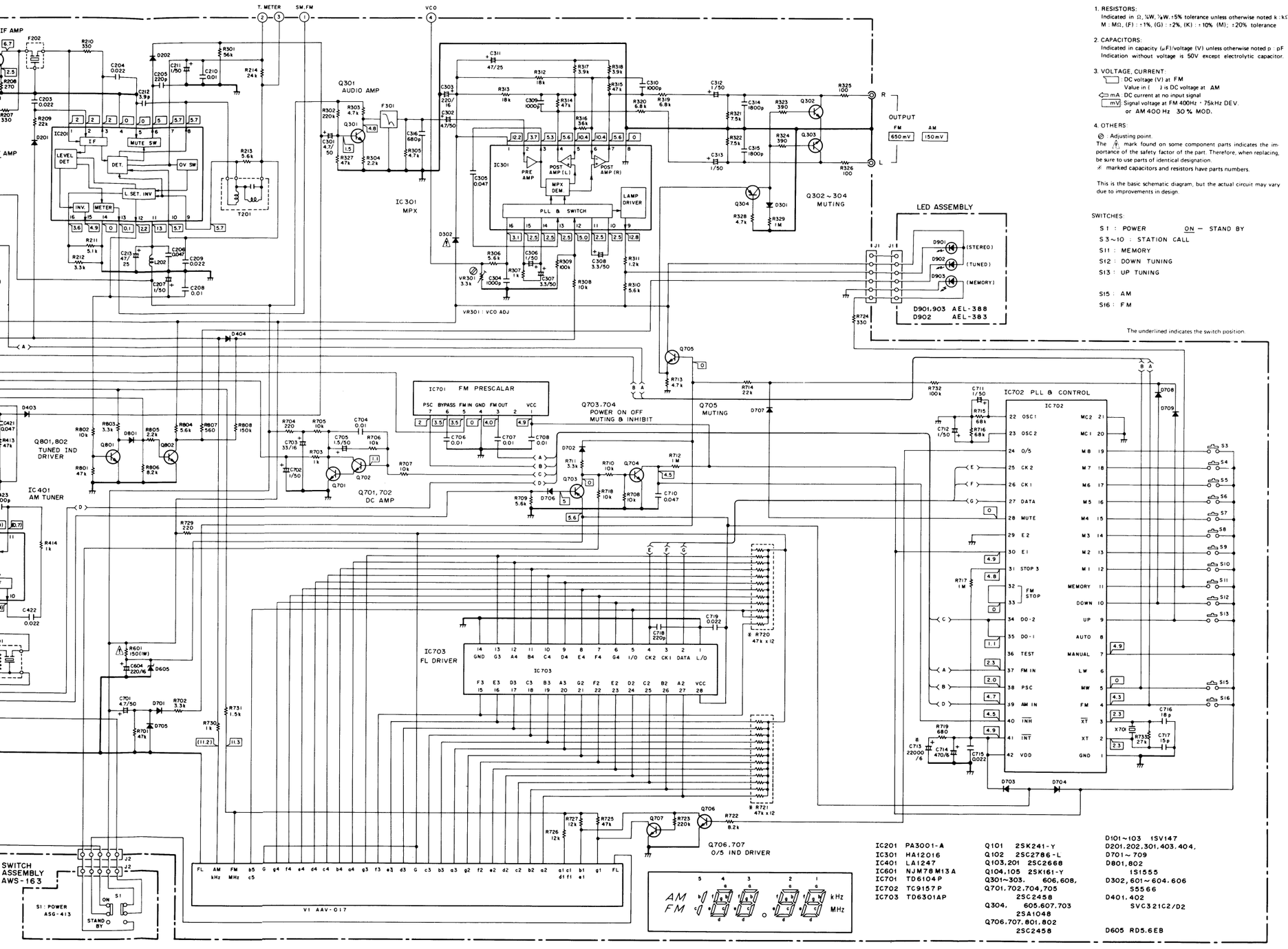


IC201	PA3001-A	Q101	2SK241-Y	Q304,605,607,703	2SA1048	D101~103	1SV147
IC301	HA12016	Q102	2SC2786-L			D201,202,301,403,404, D701~709,801,802	1S1555
IC401	LA1247	Q103,201	2SC2668				
IC601	NJM78M13A	Q104,105	2SK161-Y	Q706,707,801,802	2SC2458	D302,601~604,606	S5566
IC701	TD6104P	Q301~303,606,608, Q701,702,704,705	2SC2458			D401,402	SVC321C2/D2
IC702	TC9157P					D605	RD5.6EB
IC703	TD6301AP						

SCHEMATIC DIAGRAM (FOR HEZ AND YP TYPES)
TX-950/HEZ



Power Supply Circuit for TX-950/YP



1. RESISTORS:
Indicated in Ω, ¼W, ½W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
DC voltage (V) at FM
Value in ( ) is DC voltage at AM
mA DC current at no input signal
mV Signal voltage at FM 400Hz · 75kHz DEV. or AM 400Hz 30% MOD.

4. OTHERS:
Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
⚠ marked capacitors and resistors have parts numbers.

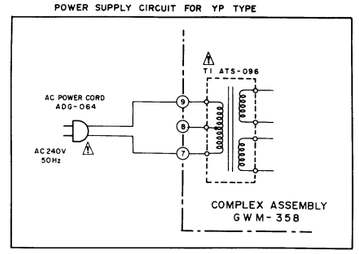
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:
S1 : POWER ON — STAND BY
S3~10 : STATION CALL
S11 : MEMORY
S12 : DOWN TUNING
S13 : UP TUNING

S15 : AM
S16 : FM

The underlined indicates the switch position.

POWER SUPPLY CIRCUIT FOR YP TYPE



IC201 PA3001-A
IC301 HA12016
IC401 LA1247
IC601 NJM78M13A
IC701 TD6104P
IC702 TC9157P
IC703 TD6301AP

Q101 2SK241-Y
Q102 2SC2786-L
Q103,201 2SC2668
Q104,105 2SK161-Y
Q301~303, 606,608,
Q701,702,704,705 2SC2458
Q304, 605,607,703 2SA1048
Q706,707,801,802 2SC2458

D101~103 1SV147
D201,202,301,403,404, D701~709 1S1555
D801,802 1S1555
D302,601~604,606 S5566
D401,402 SVC321C2/D2
D605 RD5.6EB

2. FOR S AND S/G TYPES

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 x 10¹*	*561 ..... RD¼PS 5 6 1 J*
47kΩ	*47 x 10³*	*473 ..... RD¼PS 4 7 3 J*
0.5Ω	*0R5*	*..... RN2H 0 R 5 K*
1Ω	*010*	*..... RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 x 10¹*	*5621 .... RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★ .*

  ★★ GENERALLY MOVES FASTER THAN ★

  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

The S and S/G types are the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description		Part No.			Remarks
			KU type	S type	S/G type	
		Complex assembly	GWM-346	GWM-357	GWM-357	
⚠ ★★	FU601	Fuse (0.8A/125V)	AEK-118	...	...	
		Operating Instructions (Spanish)	...	ARC-068	...	
		Packing case	AHE-332	AHE-354	AHE-354	
⚠		AC power cord	ADG-073	ADG-072	ADG-072	

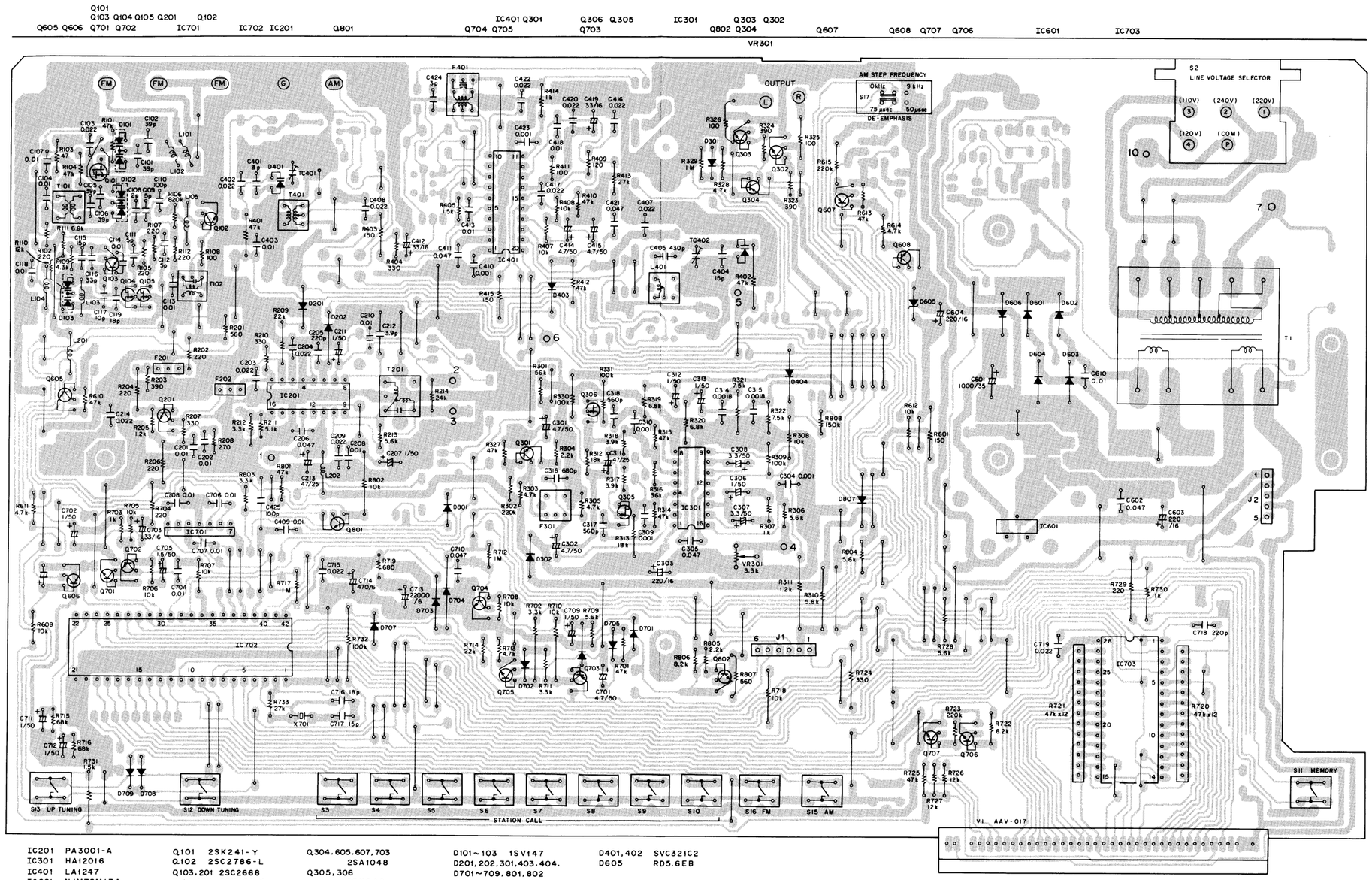
Complex Assembly (GWM-357)

The complex assembly GWM-357 (for S and S/G types) is the same as the GWM-346 (for the KU type) with the exception of the following sections.

Mark	Symbol & Description		Part No.		Remarks
			GWM-346	GWM-357	
	R616	Carbon composition	ACN-140	...	
⚠ ★	T1	Power transformer	ATS-095	ATS-097	
⚠ ★★	S2	Line voltage selector	...	AKX-505	

1 2 3 4 5 6

COMPLEX ASSEMBLY (GWM-357)



IC201 PA3001-A	Q101 2SK241-Y	Q304.605.607.703 2SA1048	D101~103 1SV147	D401,402 SVC321C2
IC301 HA12016	Q102 2SC2786-L	Q305,306 2SK246	D201,202,301,403,404. D701~709,801,802 1SI555	D605 RD5.6EB
IC401 LA1247	Q103,201 2SC2668	Q706,707,801,802 2SC2458	D302,601~604,606 S5566	
IC601 NJM78M13A	Q104,105 2SK161-Y			
IC701 TD6104P	Q301~303,606,608, Q701,702,704,705 2SC2458			
IC702 TC9157P				
IC703 TD6301AP				

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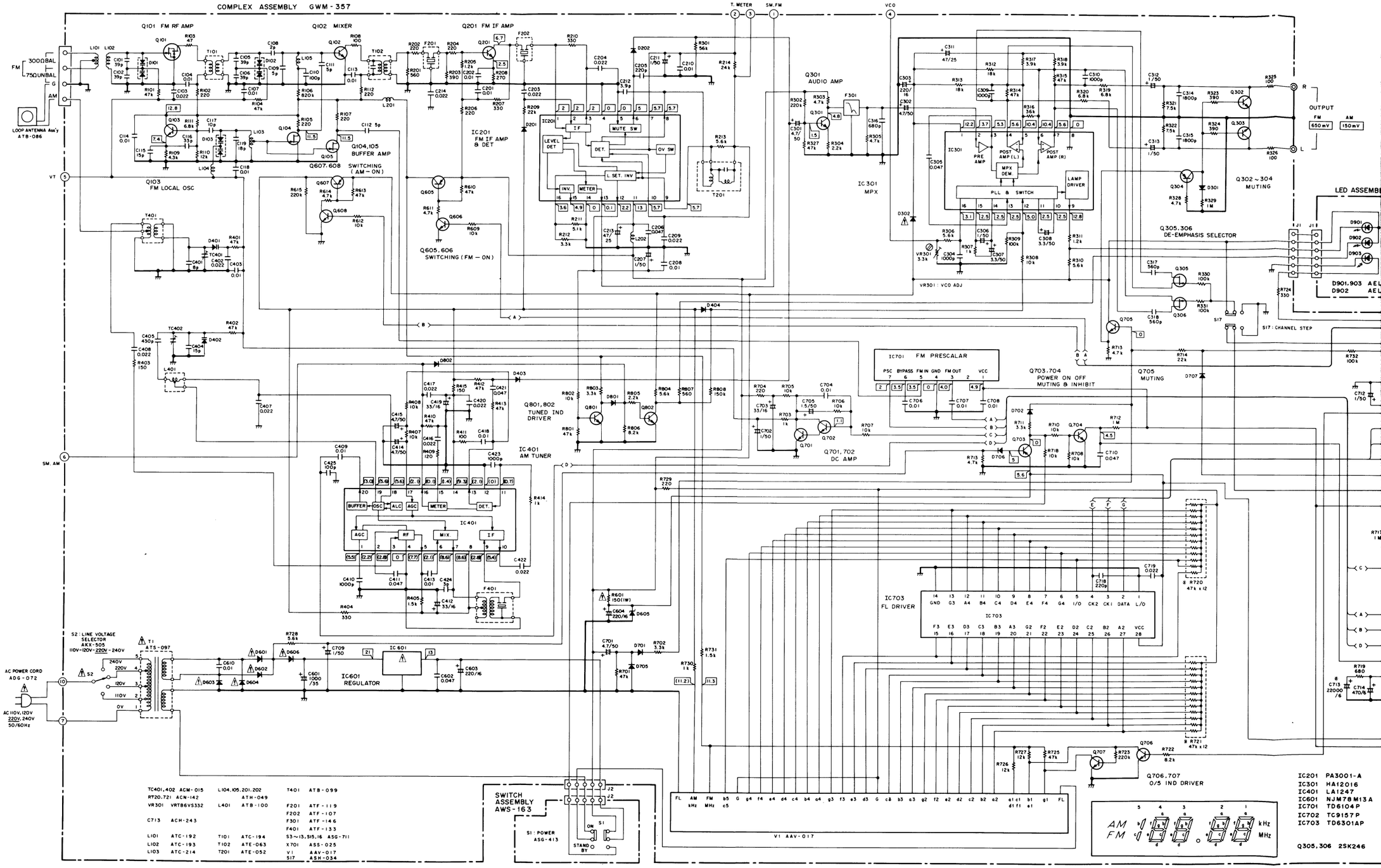
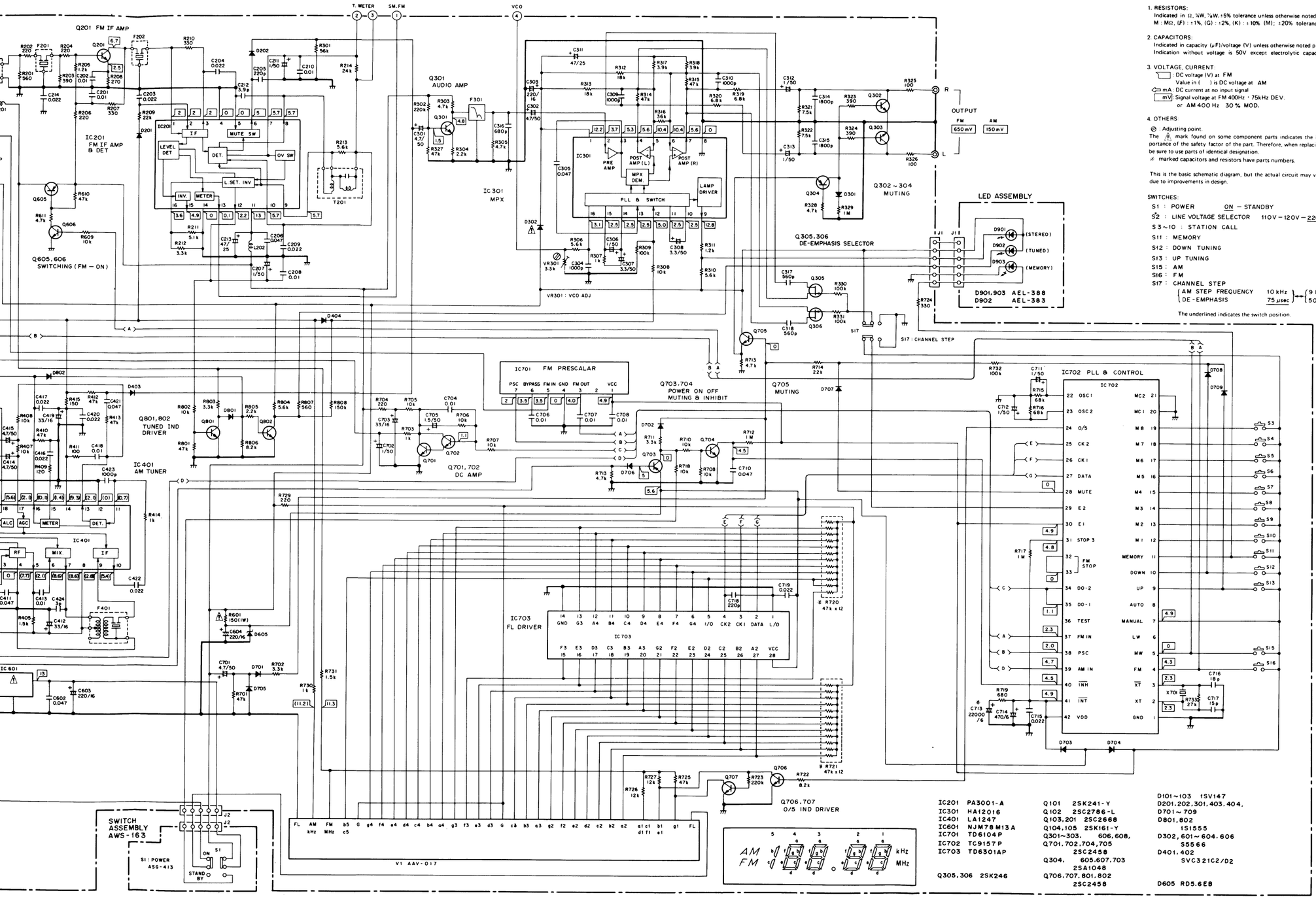
SCHEMATIC DIAGRAM (FOR S AND S/G TYPES)





1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M) : ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
: DC voltage (V) at FM
Value in ( ) is DC voltage at AM
⇦ mA : DC current at no input signal
mV : Signal voltage at FM 400Hz ± 75kHz DEV. or AM 400Hz 30% MOD.

4. OTHERS:
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
☆ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:
S1 : POWER ON – STANDBY
S2 : LINE VOLTAGE SELECTOR 110V – 120V – 220V – 240V
S3~10 : STATION CALL
S11 : MEMORY
S12 : DOWN TUNING
S13 : UP TUNING
S15 : AM
S16 : FM
S17 : CHANNEL STEP
AM STEP FREQUENCY 10kHz → 9kHz
DE-EMPHASIS 75μsec → 50μsec

The underlined indicates the switch position.

IC201 PA3001-A
IC301 HA12016
IC401 LA1247
IC601 NJM78M13A
IC701 TD6104P
IC702 TC9157P
IC703 TD6301AP

Q305,306 2SK246

Q101 2SK241-Y
Q102 2SC2786-L
Q103,201 2SC2668
Q104,105 2SK161-Y
Q301~303, 606,608, Q701,702,704,705 2SC2458
Q304, 605,607,703 2SA1048
Q706,707,801,802 2SC2458

D101~103 1SV147
D201,202,301,403,404, D701~709 D801,802 1S1555
D302,601~604,606 S5566
D401,402 SVC321C2/D2
D605 RD5.6EB

3. FOR SS TYPE

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 × 10¹*	*561*	*RD¼PS* 5 6 1	*J*
47kΩ	*47 × 10³*	*473*	*RD¼PS* 4 7 3	*J*
0.5Ω	*0R5*		*RN2H* 0 R 5	*K*
1Ω	*010*		*RS1P* 0 1 0	*K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN¼SR* 5 6 2 1	*F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★*

  ★★ GENERALLY MOVES FASTER THAN ★

  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

The SS type is the same as the KU type with the exception of the following sections.

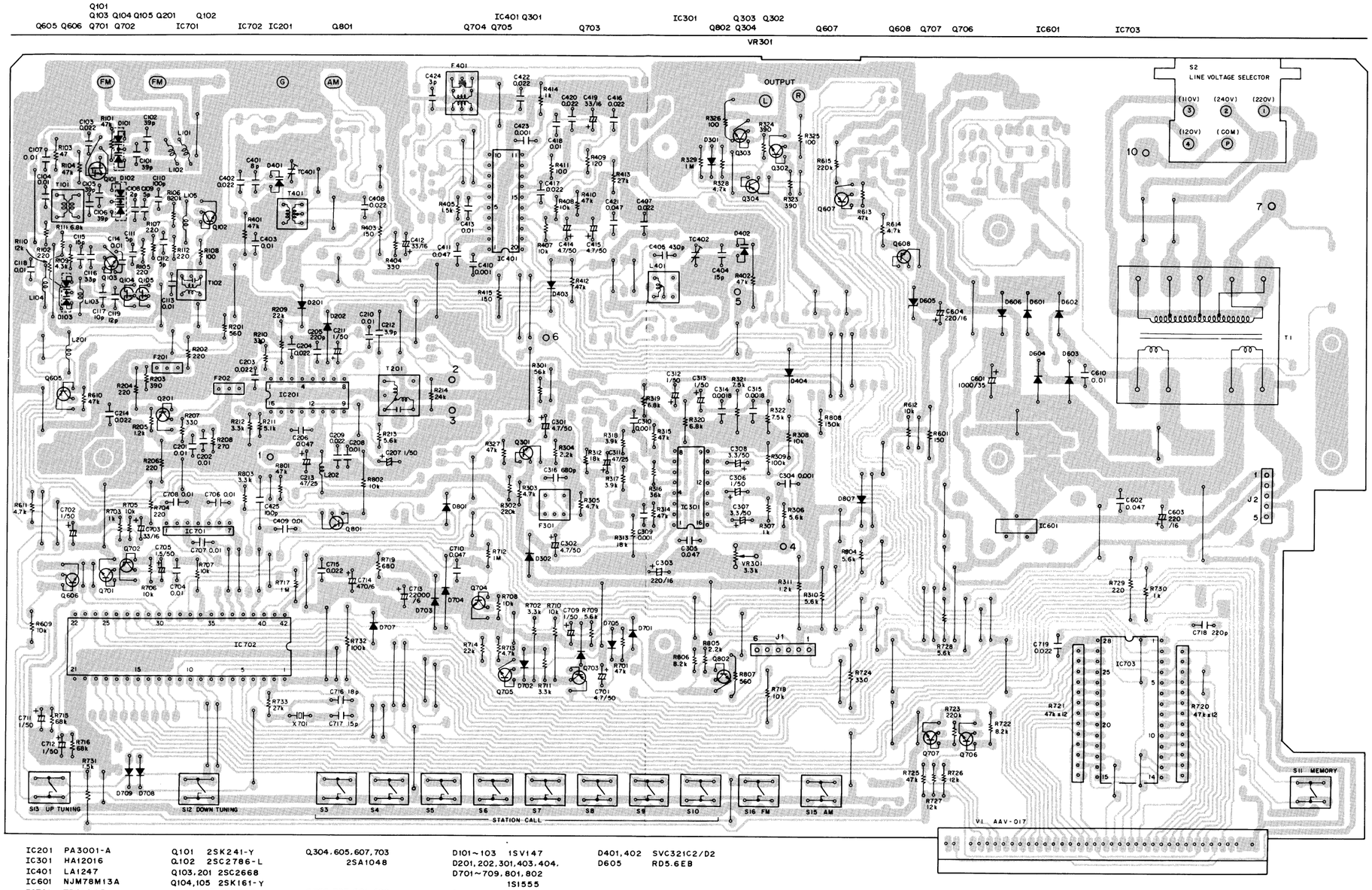
Contrast of Miscellaneous Parts

Mark	Symbol & Description		Part No.		Remarks
			KU type	SS type	
⚠ ★★		Complex assembly	GWM-346	GWM-364	
	FU601	Fuse (0.8A/125V)	AEK-118	...	
		Packing case	AHE-332	AHE-354	
⚠		AC power cord	ADG-073	ADG-072	

The complex assembly GWM-364 (for SS type) is the same as the GWM-346 (for KU type) with the exception of the following sections.

Mark	Symbol & Description		Part No.		Remarks
			GWM-346	GWM-364	
★★	Q305, Q306		2SK246	...	
⚠ ★	T1	Power transformer	ATS-095	ATS-097	
	L103	FM OSC coil	ATC-214	ATC-215	
⚠ ★★	S2	Line voltage selector	...	AKX-505	
★★	S17	Slide switch	ASH-034	...	
	C119		CCDTH 180J 50	CCD TH 120J 50	
	C317, C318		CKDYB 561K 50	...	
⚠	R616	Carbon composition	ACN-140	...	
	R330, R331		RD1/8PM □□□J	...	

COMPLEX ASSEMBLY (GWM-364)



IC201	PA3001-A	Q101	2SK241-Y	Q304,605,607,703	2SA1048	D101~103	1SV147
IC301	HA12016	Q102	2SC2786-L			D201,202,301,403,404,	
IC401	LA1247	Q103,201	2SC2668			D701~709,801,802	1SI555
IC601	NJM78M13A	Q104,105	2SK161-Y	Q706,707,801,802	2SC2458	D302,601~604,606	S5566
IC701	TD6104P	Q301~303,606,608,					
IC702	TC9157P	Q701,702,704,705	2SC2458				
IC703	TD6301AP						

D401,402	SVC321C2/D2
D605	RD5.6EB

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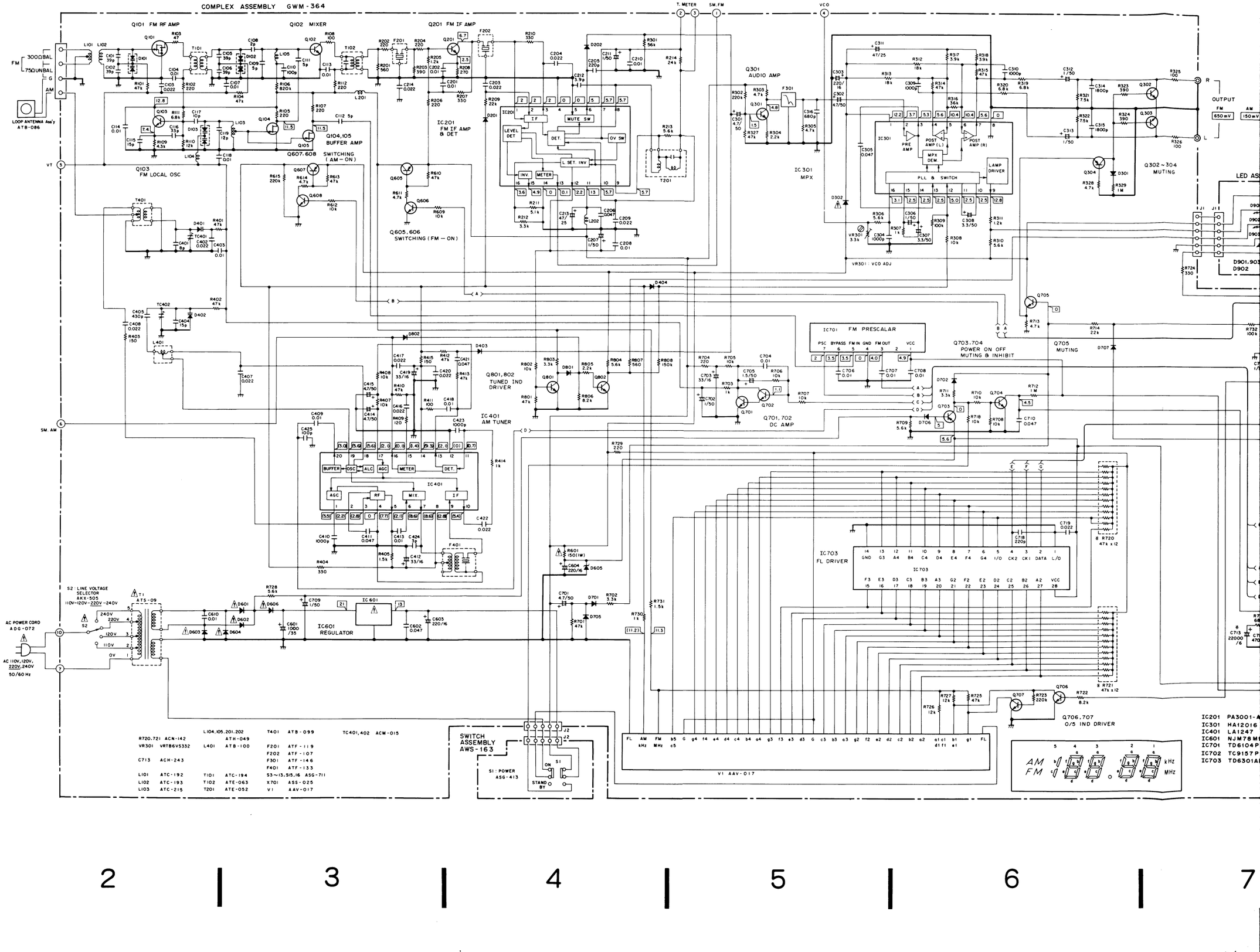
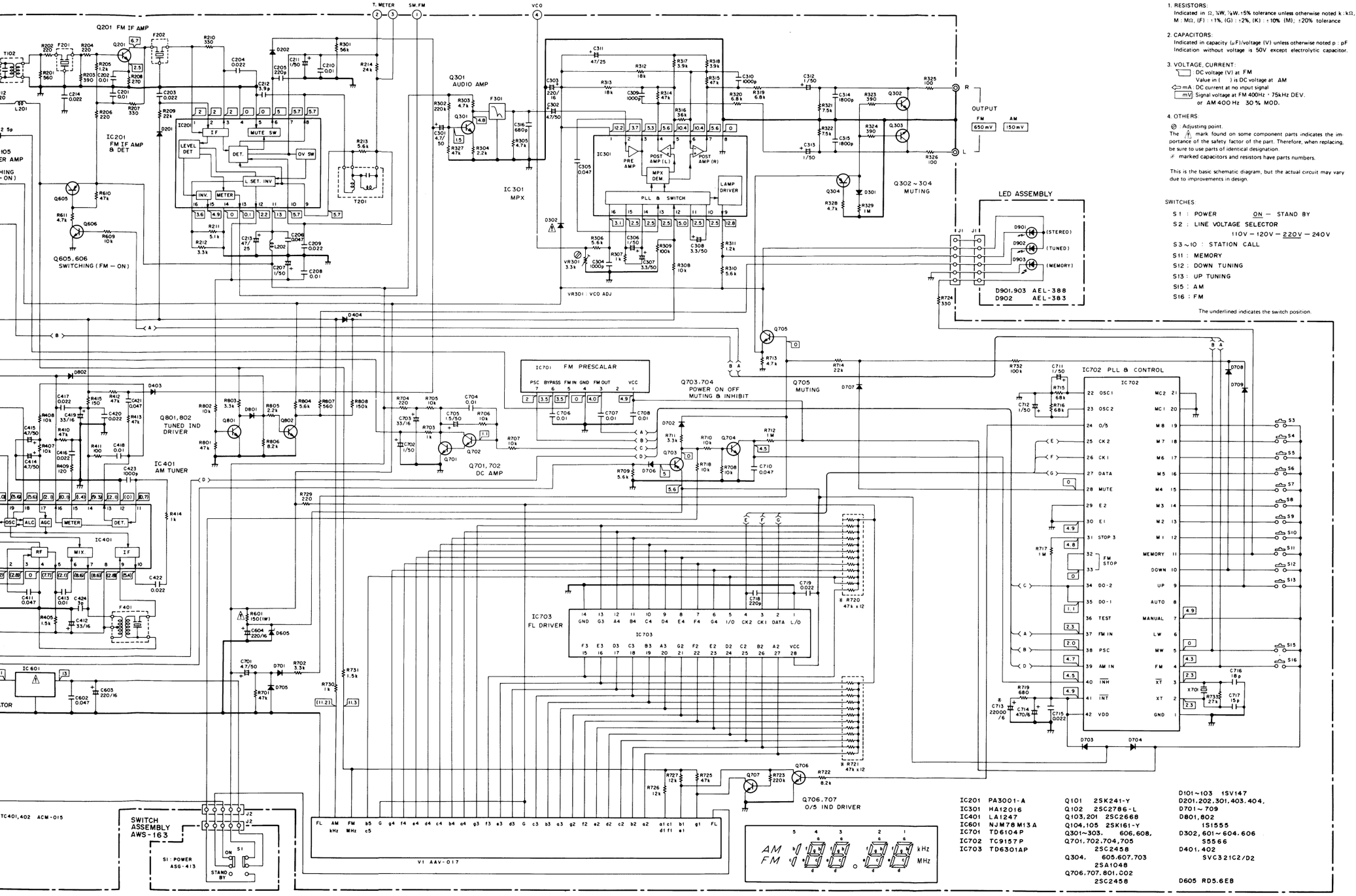
SCHEMATIC DIAGRAM (FOR SS TYPE)





1. RESISTORS:
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2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
DC voltage (V) at FM
Value in ( ) is DC voltage at AM
⇦ mA : DC current at no input signal
mV Signal voltage at FM 400Hz · 75kHz DEV. or AM 400Hz 30% MOD.

4. OTHERS:
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:
S1 : POWER ON – STAND BY
S2 : LINE VOLTAGE SELECTOR 110V – 120V – 220V – 240V
S3 ~ 10 : STATION CALL
S11 : MEMORY
S12 : DOWN TUNING
S13 : UP TUNING
S15 : AM
S16 : FM

The underlined indicates the switch position.

IC201	PA3001-A	Q101	2SK241-Y
IC301	HA12016	Q102	2SC2786-L
IC401	LA1247	Q103,201	2SC2668
IC601	NJM78M13A	Q104,105	2SK161-Y
IC701	TD6104P	Q301~303,	606,608,
IC702	TC9157P	Q701,702,704,705	2SC2458
IC703	TD6301AP	Q304,	605,607,703
			2SA1048
		Q706,707,801,802	2SC2458

D101~103	1SV147
D201,202,301,403,404, D701~709	1S1555
D801,802	1S1555
D302,601~604,606	S5566
D401,402	SVC321C2/D2
D605	RD5.6EB